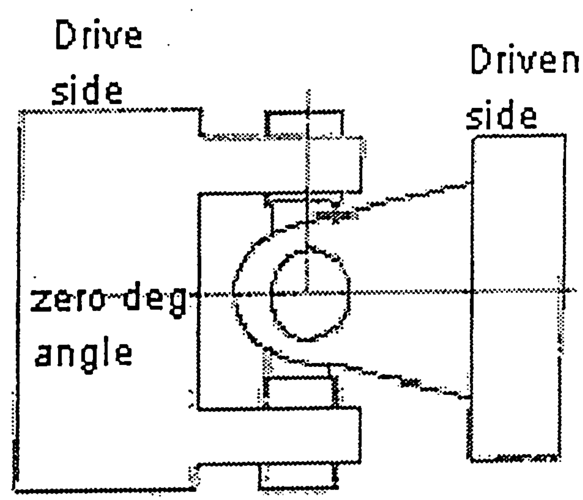


FIG. 1a

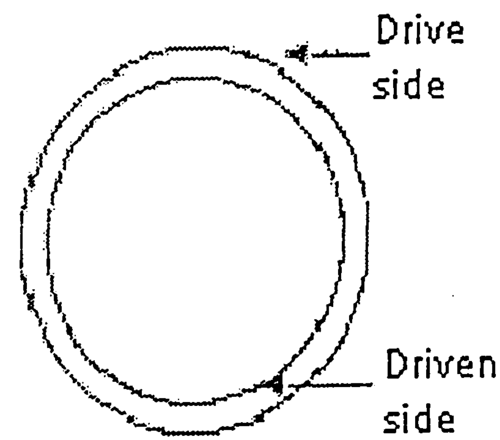


FIG. 1b

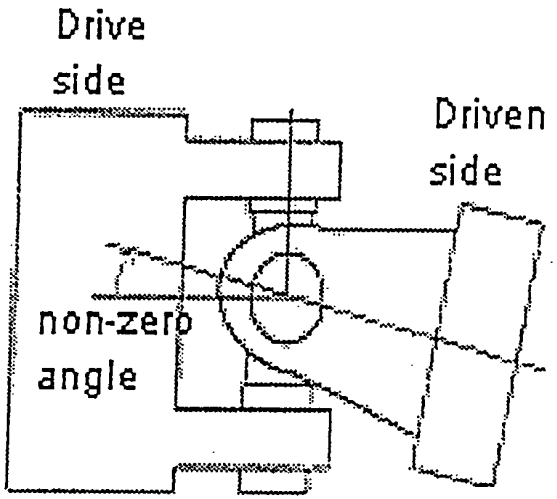


FIG. 2a

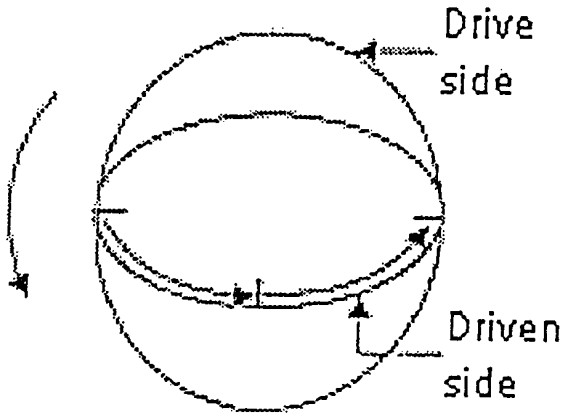


FIG. 2b

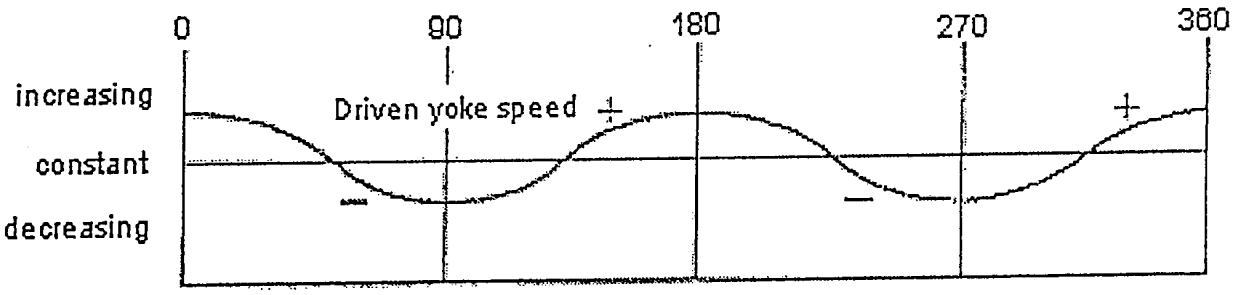
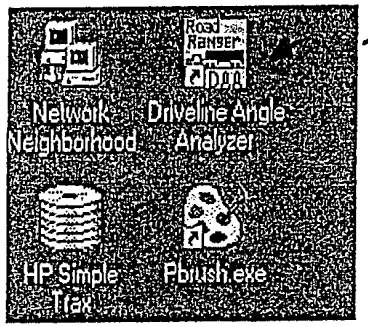


FIG. 3



40

FIG. 4

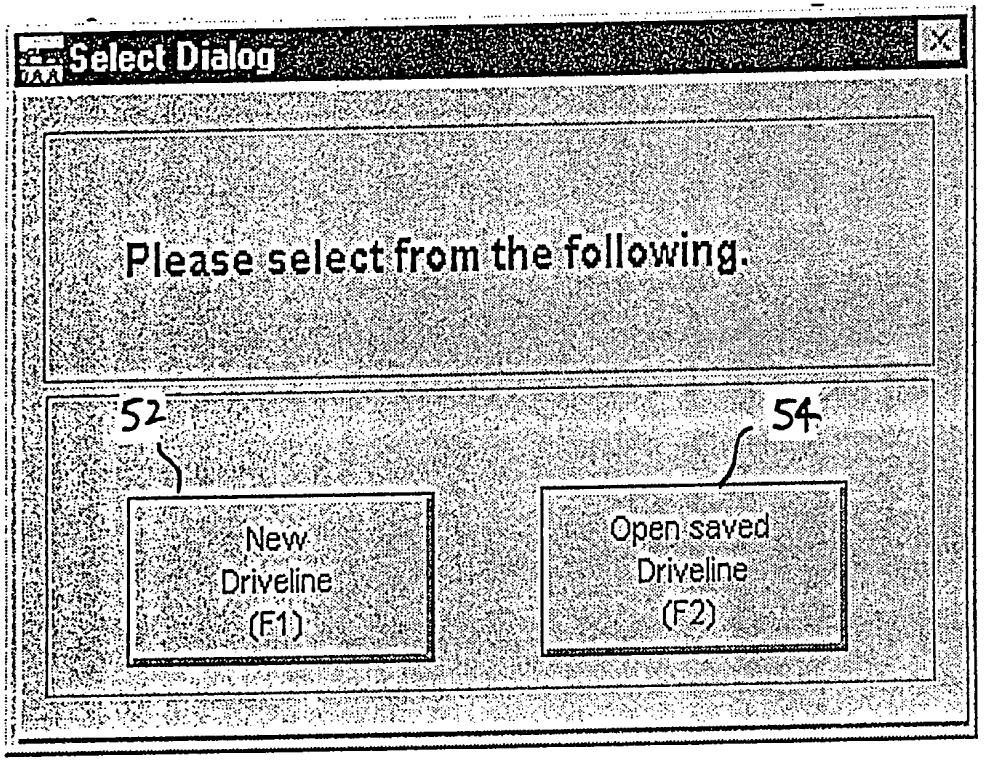

Select Dialog
Please select from the following.
52
54
New Driveline (F1)
Open saved Driveline (F2)
50

FIG. 5

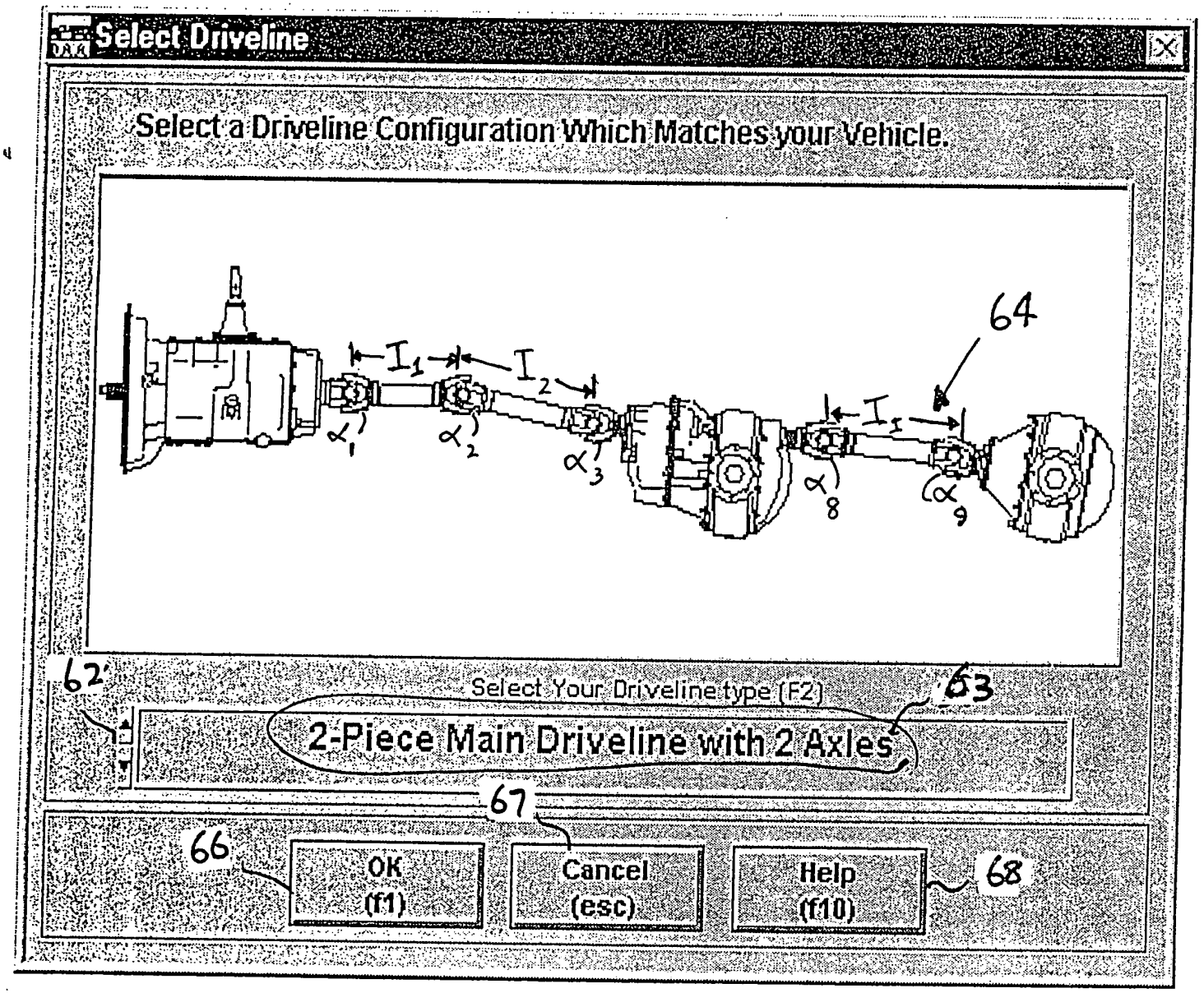

Select Driveline
Select a Driveline Configuration Which Matches your Vehicle.
60
64
I_1
I_2
I_3
α_1
α_2
α_3
α_8
α_9
62
Select Your Driveline type (F2)
63
2-Piece Main Driveline with 2 Axles
67
66
OK (f1)
Cancel (esc)
Help (f10)
68

FIG. 6

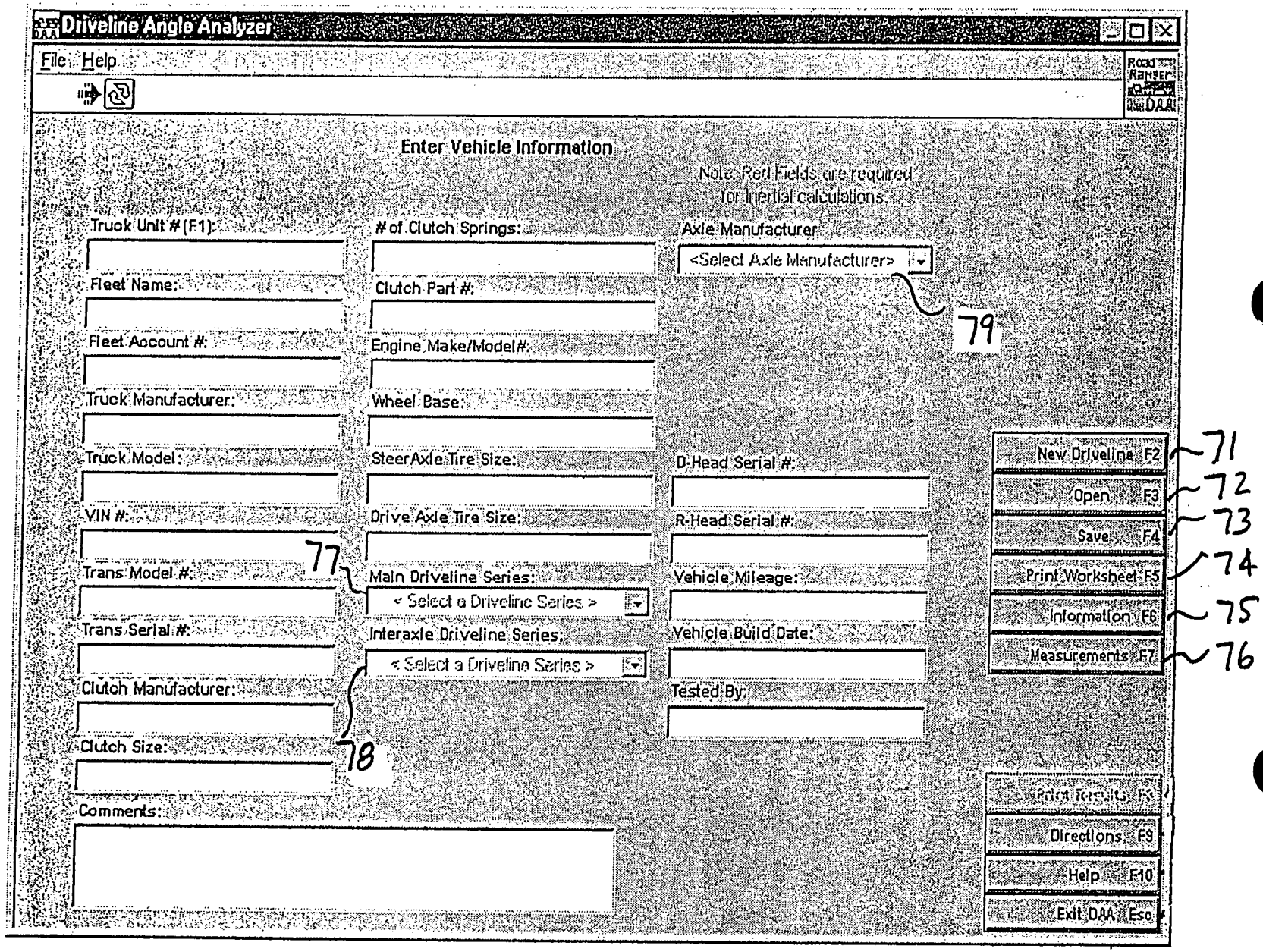

70
Driveline Angle Analyzer
File Help
Road Ranger
DAA
Enter Vehicle Information
Note: Red fields are required for inertial calculations.
Truck Unit # (F1):
# of Clutch Springs:
Axle Manufacturer
<Select Axle Manufacturer>
79
Fleet Name:
Clutch Part #:
Fleet Account #:
Engine Make/Model #:
Truck Manufacturer:
Wheel Base:
Truck Model:
SteerAxle Tire Size:
D-Head Serial #:
VIN #:
Drive Axle Tire Size:
R-Head Serial #:
77
Trans Model #:
Main Driveline Series:
< Select a Driveline Series >
Vehicle Mileage:
Trans Serial #:
Interaxle Driveline Series:
< Select a Driveline Series >
Vehicle Build Date:
Clutch Manufacturer:
Tested By:
78
Clutch Size:
Comments:
New Driveline F2
71
Open F3
72
Save F4
73
Print Worksheet F5
74
Information F6
75
Measurements F7
76
Print Results F8
Directions F9
Help F10
Exit DAA Esc

FIG. 7

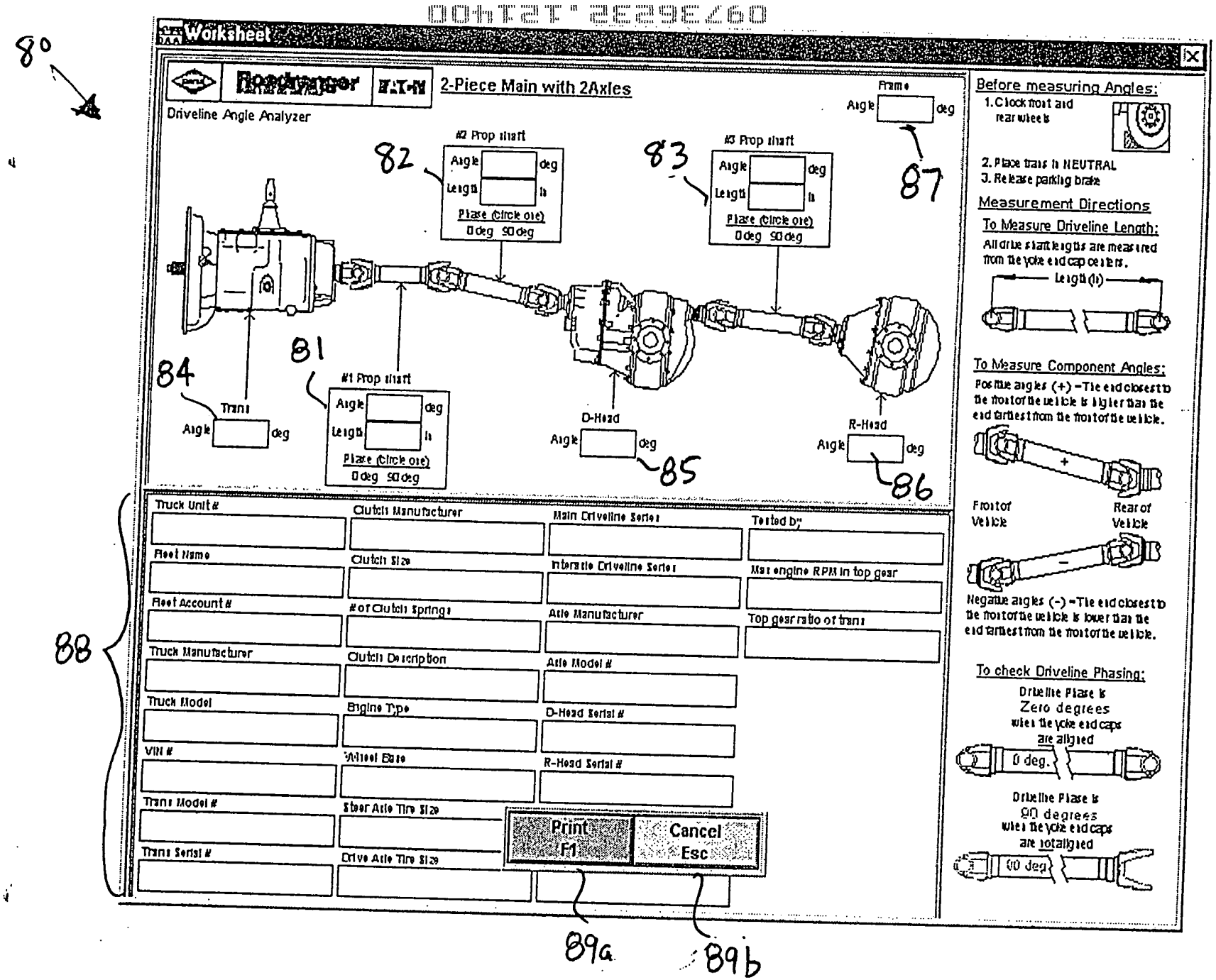

80
Worksheet
Floorplanner
2-Piece Main with 2Axles
Driveline Angle Analyzer
Frame
Angle
deg
87
#2 Prop shaft
82
Angle
deg
Length
in
Place (circle one)
0deg 90deg
#3 Prop shaft
83
Angle
deg
Length
in
Place (circle one)
0deg 90deg
84
Trans
Angle
deg
81
#1 Prop shaft
Angle
deg
Length
in
Place (circle one)
0deg 90deg
D-Head
Angle
deg
85
R-Head
Angle
deg
86
Before measuring Angles:
1. Clock front and rear wheels
2. Place trans in NEUTRAL
3. Release parking brake
Measurement Directions
To Measure Driveline Length:
All drive shaft lengths are measured from the yoke end cap centers.
Length (L)
To Measure Component Angles:
Positive angles (+) - The end closest to the front of the vehicle is higher than the end farthest from the front of the vehicle.
+
Front of Vehicle
Rear of Vehicle
-
Negative angles (-) - The end closest to the front of the vehicle is lower than the end farthest from the front of the vehicle.
To check Driveline Phasing:
Driveline Phase is
Zero degrees
when the yoke end caps are aligned
0 deg.
Driveline Phase is
90 degrees
when the yoke end caps are totalligned
90 deg
88
Truck Unit #
Clutch Manufacturer
Main Driveline Series
Tested by
Fleet Name
Clutch Size
Interaxle Driveline Series
Max engine RPM in top gear
Fleet Account #
# of Clutch Springs
Axle Manufacturer
Top gear ratio of trans
Truck Manufacturer
Clutch Description
Axle Model #
Truck Model
Engine Type
D-Head Serial #
VIN #
Wheel Base
R-Head Serial #
Trans Model #
Steer Axle Tire Size
Print F1
Cancel Esc
Trans Serial #
Drive Axle Tire Size
89a
89b

FIG. 8

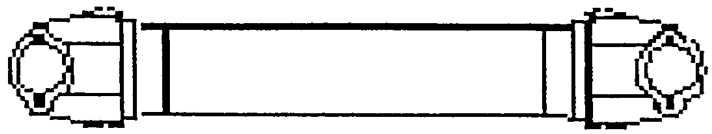


FIG. 9a

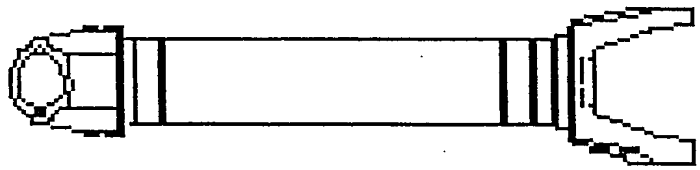


FIG. 9b

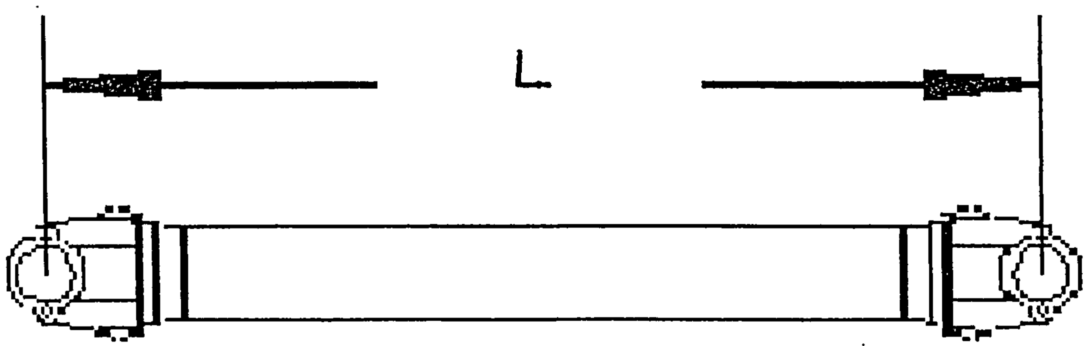


FIG. 10

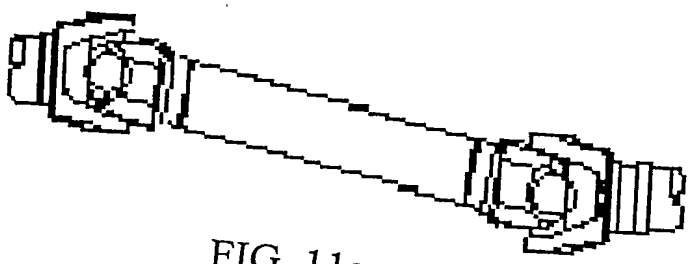


FIG. 11a

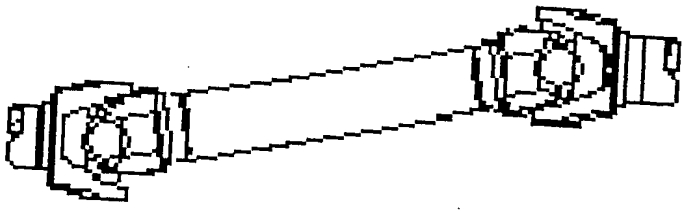


FIG. 11b

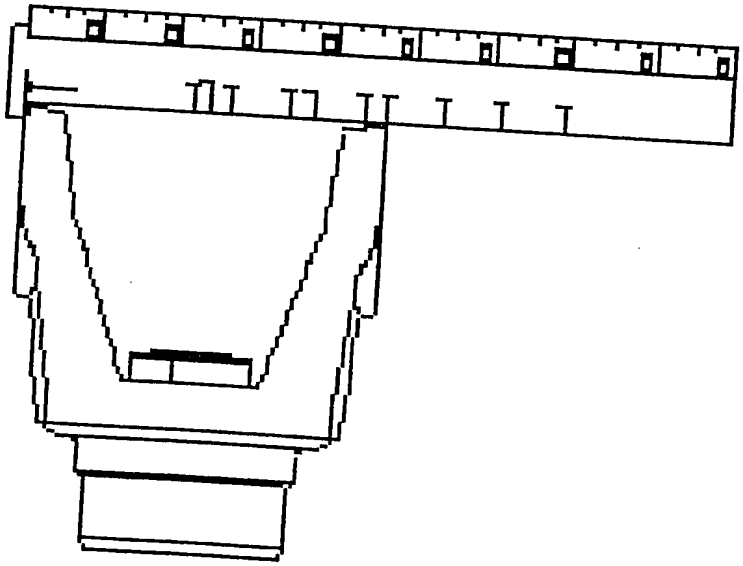


FIG. 12

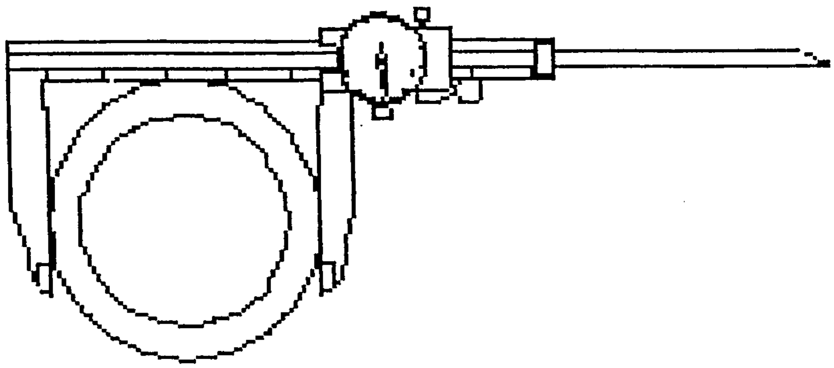


FIG. 13

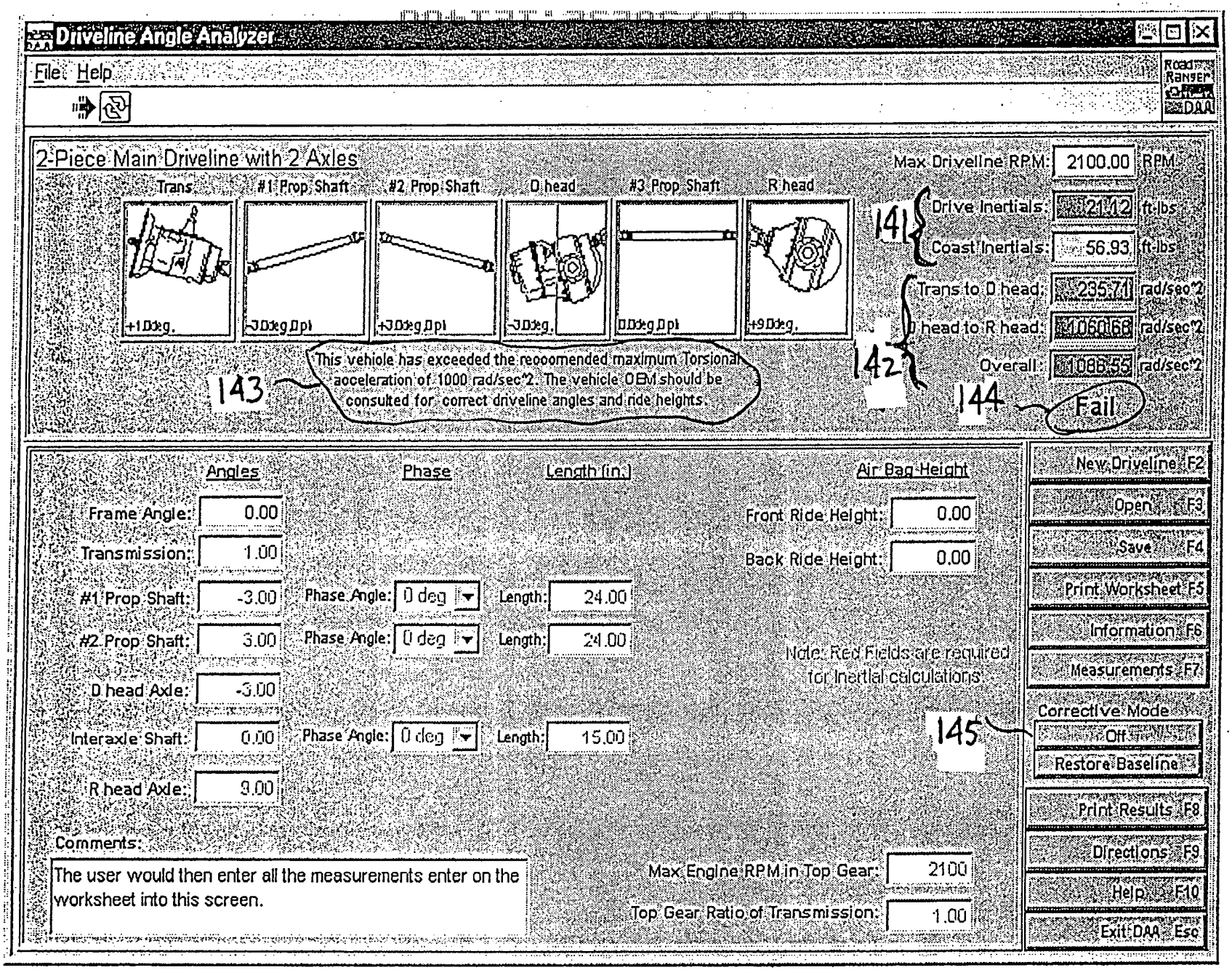

140
Driveline Angle Analyzer
File Help
Road Ranger
DAA
2-Piece Main Driveline with 2 Axles
Max Driveline RPM: 2100.00 RPM
Trans
#1 Prop Shaft
#2 Prop Shaft
D head
#3 Prop Shaft
R head
+10.0deg.
-30.0deg.
+30.0deg.
-30.0deg.
0.0deg.
+9.0deg.
141
Drive Inertials: 2112 ft-lbs
Coast Inertials: 56.93 ft-lbs
Trans to D head: 235.71 rad/sec^2
D head to R head: 1060.68 rad/sec^2
142
Overall: 1086.55 rad/sec^2
143
This vehicle has exceeded the recommended maximum Torsional acceleration of 1000 rad/sec^2. The vehicle OEM should be consulted for correct driveline angles and ride heights.
144
Fail
Angles
Phase
Length (in.)
Air Bag Height
Frame Angle: 0.00
Transmission: 1.00
#1 Prop Shaft: -3.00
Phase Angle: 0 deg
Length: 24.00
#2 Prop Shaft: 3.00
Phase Angle: 0 deg
Length: 24.00
D head Axle: -3.00
Interaxle Shaft: 0.00
Phase Angle: 0 deg
Length: 15.00
R head Axle: 9.00
Front Ride Height: 0.00
Back Ride Height: 0.00
Note: Red Fields are required for Inertial calculations
145
Corrective Mode
Off
Restore Baseline
Comments:
The user would then enter all the measurements enter on the worksheet into this screen.
Max Engine RPM in Top Gear: 2100
Top Gear Ratio of Transmission: 1.00
New Driveline F2
Open F3
Save F4
Print Worksheet F5
Information F6
Measurements F7
Print Results F8
Directions F9
Help F10
Exit DAA Esc

FIG. 14

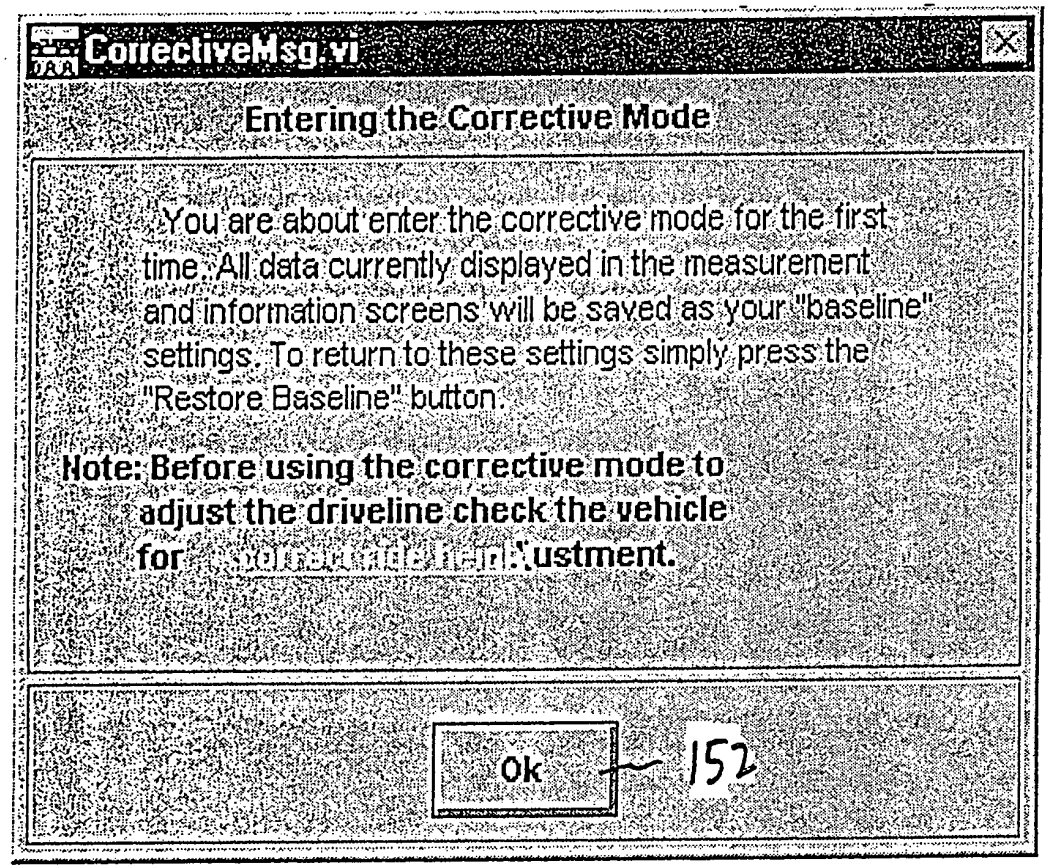

CorrectiveMsg.vi
Entering the Corrective Mode
You are about enter the corrective mode for the first time. All data currently displayed in the measurement and information screens will be saved as your "baseline" settings. To return to these settings simply press the "Restore Baseline" button.
Note: Before using the corrective mode to adjust the driveline check the vehicle for
ustment.
Ok
150
152

FIG. 15

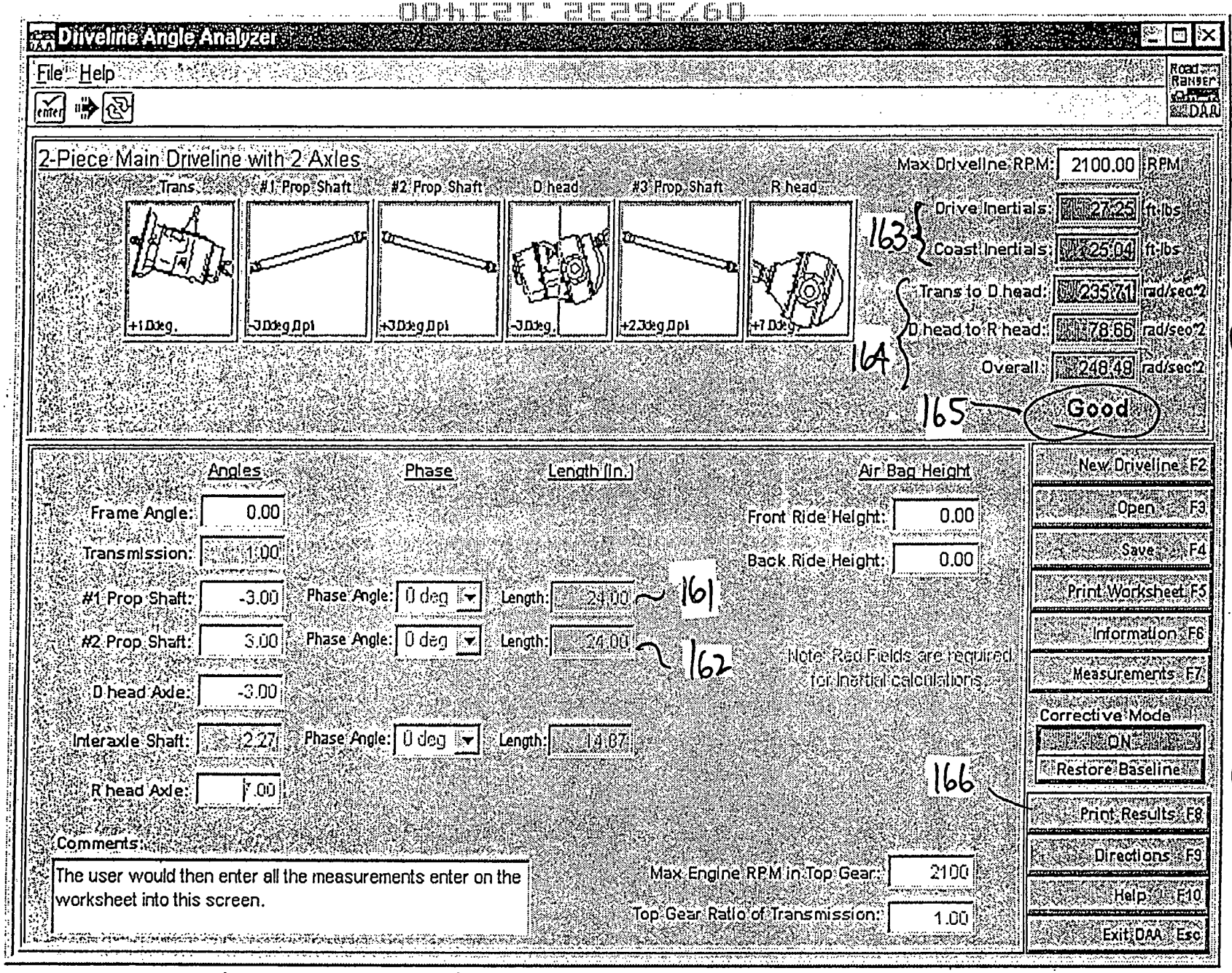

Driveline Angle Analyzer
File Help
Road Ranger
DAA
2-Piece Main Driveline with 2 Axles
Max Driveline RPM: 2100.00 RPM
Trans
#1 Prop Shaft
#2 Prop Shaft
D head
#3 Prop Shaft
R head
+1.0deg.
-3.0deg.Dpl
+3.0deg.Dpl
-3.0deg.
+2.3deg.Dpl
+7.0deg.
Drive Inertials: 27.25 ft-lbs
Coast Inertials: 25.04 ft-lbs
Trans to D head: 235.71 rad/sec^2
D head to R head: 78.66 rad/sec^2
Overall: 248.48 rad/sec^2
Good
Angles
Phase
Length (in.)
Air Bag Height
Frame Angle: 0.00
Transmission: 1.00
#1 Prop Shaft: -3.00
Phase Angle: 0 deg
Length: 24.00
#2 Prop Shaft: 3.00
Phase Angle: 0 deg
Length: 24.00
D head Axle: -3.00
Interaxle Shaft: 2.27
Phase Angle: 0 deg
Length: 14.87
R head Axle: 7.00
Front Ride Height: 0.00
Back Ride Height: 0.00
Note: Red Fields are required for Inertial calculations
Comments:
The user would then enter all the measurements enter on the worksheet into this screen.
Max Engine RPM in Top Gear: 2100
Top Gear Ratio of Transmission: 1.00
New Driveline F2
Open F3
Save F4
Print Worksheet F5
Information F6
Measurements F7
Corrective Mode
ON
Restore Baseline
Print Results F8
Directions F9
Help F10
Exit DAA Esc
160
161
162
163
164
165
166

FIG. 16

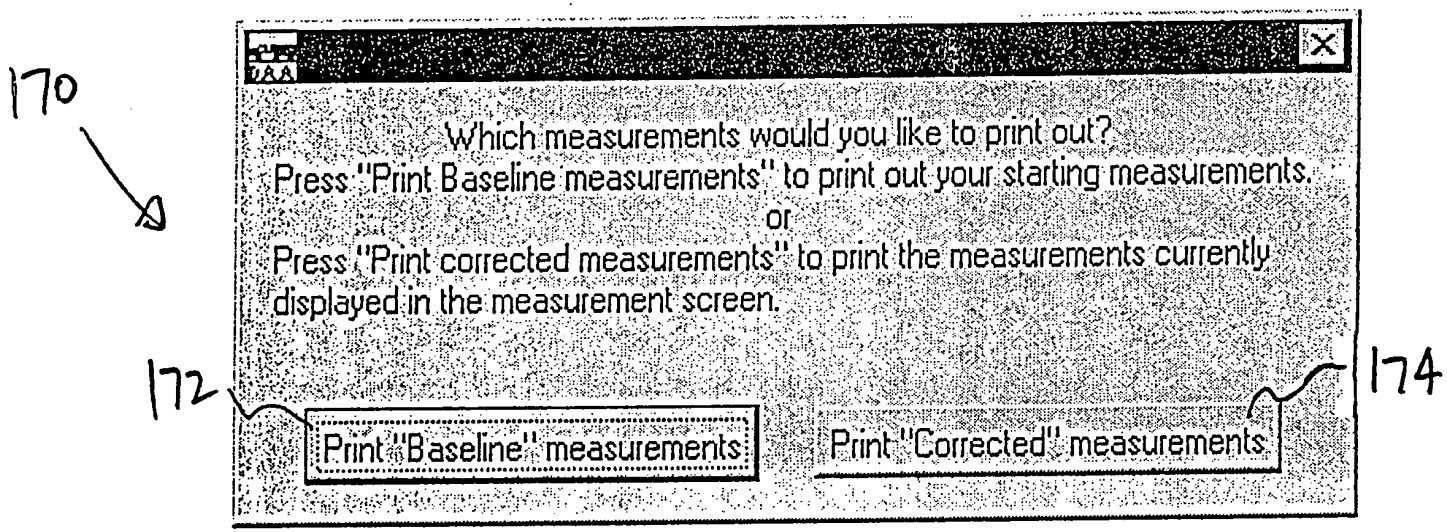

170
Which measurements would you like to print out?
Press "Print Baseline measurements" to print out your starting measurements.
or
Press "Print corrected measurements" to print the measurements currently displayed in the measurement screen.
172
Print "Baseline" measurements
Print "Corrected" measurements
174

FIG. 17

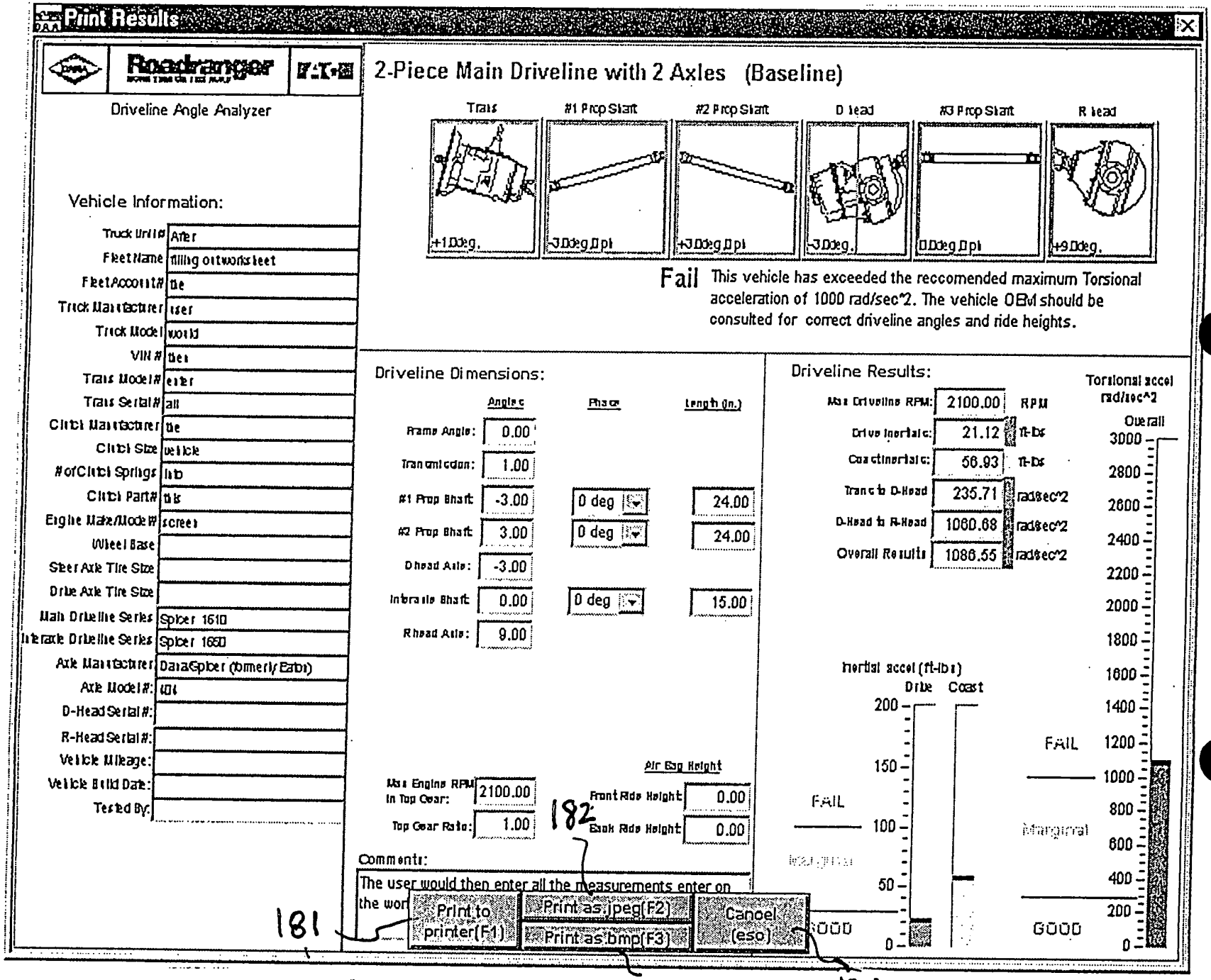

Print Results
Roadranger
Driveline Angle Analyzer
Vehicle Information:
Truck Unit #: After
Fleet Name: filling ottworks fleet
Fleet Account #: tte
Truck Manufacturer: user
Truck Model: world
VIN #: tter
Trans Model #: enter
Trans Serial #: all
Clutch Manufacturer: tte
Clutch Size: vehicle
# of Clutch Springs: ltb
Clutch Part #: this
Engine Make/Model #: screen
Wheel Base:
Steer Axle Tire Size:
Drive Axle Tire Size:
Main Driveline Series: Spicer 1610
Interaxle Driveline Series: Spicer 1660
Axle Manufacturer: Dana/Spicer (formerly Eaton)
Axle Model #: tdt
D-Head Serial #:
R-Head Serial #:
Vehicle Mileage:
Vehicle Build Date:
Tested By:
2-Piece Main Driveline with 2 Axles (Baseline)
Trans
#1 Prop Shaft
#2 Prop Shaft
D Head
#3 Prop Shaft
R Head
+1.0deg.
-3.0deg.@pi
+3.0deg.@pi
-3.0deg.
0.0deg.@pi
+9.0deg.
Fail
This vehicle has exceeded the reccomended maximum Torsional acceleration of 1000 rad/sec^2. The vehicle OEM should be consulted for correct driveline angles and ride heights.
Driveline Dimensions:
Angle
Phase
Length (in.)
Frame Angle: 0.00
Transmission: 1.00
#1 Prop Shaft: -3.00
0 deg
24.00
#2 Prop Shaft: 3.00
0 deg
24.00
Dhead Axle: -3.00
Inbraxle Shaft: 0.00
0 deg
15.00
Rhead Axle: 9.00
Max Engine RPM in Top Gear: 2100.00
Top Gear Ratio: 1.00
Air Bag Height
Front Ride Height: 0.00
Back Ride Height: 0.00
Comments:
The user would then enter all the measurements enter on the wor
Print to printer(F1)
Print as jpeg(F2)
Print as bmp(F3)
Cancel (esc)
Driveline Results:
Max Driveline RPM: 2100.00 RPM
Drive Inertia: 21.12 ft-lbs
Coast Inertia: 56.93 ft-lbs
Trans to D-Head 235.71 rad/sec^2
D-Head to R-Head 1060.68 rad/sec^2
Overall Results 1086.55 rad/sec^2
Torsional accel rad/sec^2
Overall
Inertial accel (ft-lbs)
Drive
Coast
FAIL
Marginal
GOOD
FAIL
Marginal
GOOD
180
181
182
183
184

FIG. 18

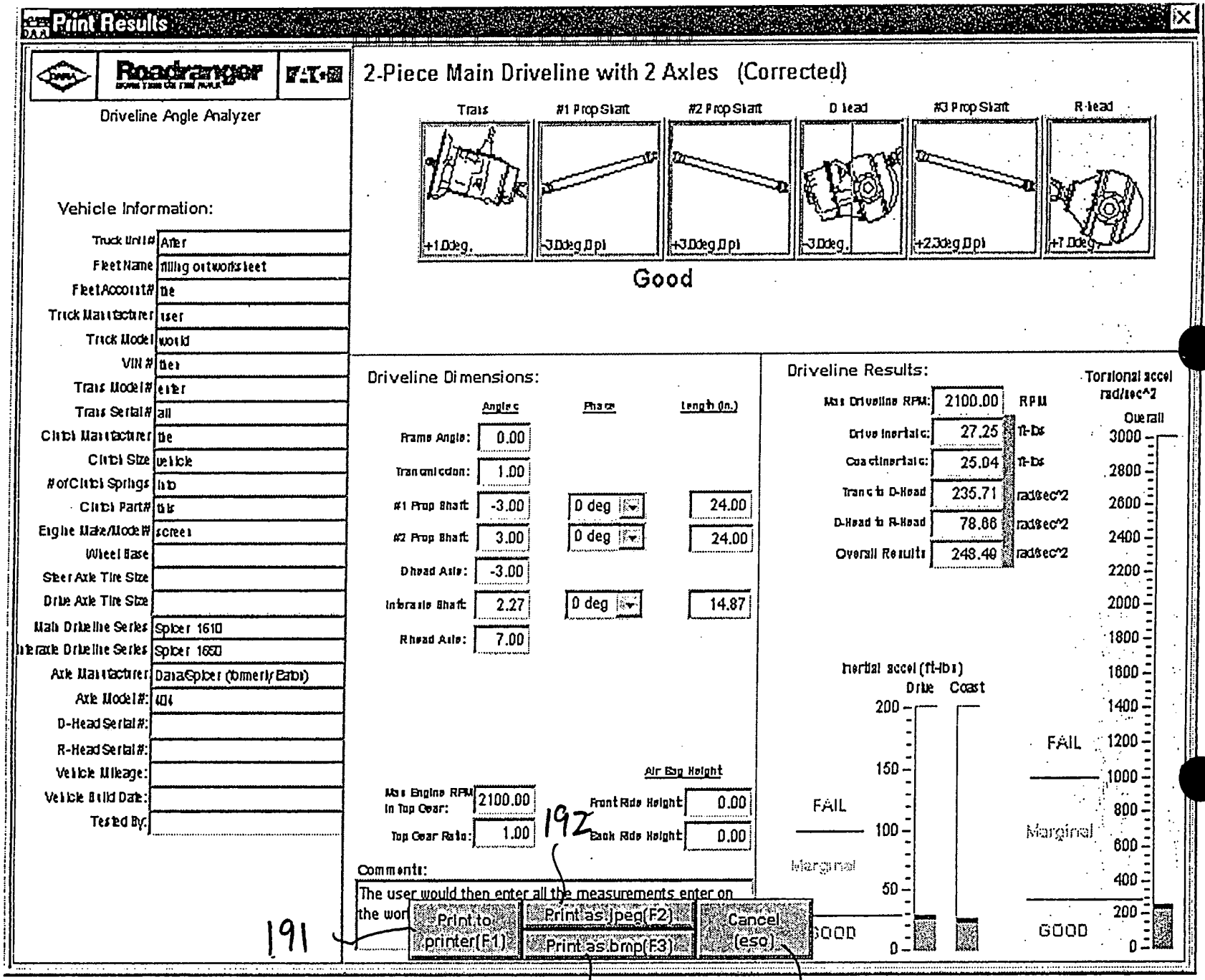

190
Print Results
Roadranger
Driveline Angle Analyzer
Vehicle Information:
Truck Unit #: After
Fleet Name: filling ortworks fleet
Fleet Account #: tie
Truck Manufacturer: user
Truck Model: world
VIN #: then
Trans Model #: enter
Trans Serial #: all
Clutch Manufacturer: the
Clutch Size: vehicle
# of Clutch Springs: into
Clutch Part #: this
Engine Make/Model #: screen
Wheel Base:
Steer Axle Tire Size:
Drive Axle Tire Size:
Main Driveline Series: Spicer 1610
Interaxle Driveline Series: Spicer 1650
Axle Manufacturer: DanaSpicer (formerly Eaton)
Axle Model #: 404
D-Head Serial #:
R-Head Serial #:
Vehicle Mileage:
Vehicle Build Date:
Tested By:
2-Piece Main Driveline with 2 Axles (Corrected)
Trans
#1 Prop Shaft
#2 Prop Shaft
D-Head
#3 Prop Shaft
R-Head
+1.0deg.
-3.0deg.@ pi
+3.0deg.@ pi
-3.0deg.
+2.3deg.@ pi
+7.0deg.
Good
Driveline Dimensions:
Angle
Phase
Length (in.)
Frame Angle: 0.00
Transmission: 1.00
#1 Prop Shaft: -3.00
0 deg
24.00
#2 Prop Shaft: 3.00
0 deg
24.00
D-head Axle: -3.00
Interaxle Shaft: 2.27
0 deg
14.87
R-head Axle: 7.00
Max Engine RPM in Top Gear: 2100.00
Top Gear Ratio: 1.00
Air Bag Height
Front Ride Height: 0.00
Back Ride Height: 0.00
Comments:
The user would then enter all the measurements enter on the wor
Print to printer(F1)
Print as jpeg(F2)
Print as bmp(F3)
Cancel (esc)
191
192
193
194
Driveline Results:
Max Driveline RPM: 2100.00 RPM
Drive Inertia: 27.25 ft-lbs
Coast Inertia: 25.04 ft-lbs
Trans to D-Head 235.71 rad/sec^2
D-Head to R-Head 78.66 rad/sec^2
Overall Results 248.49 rad/sec^2
Torsional accel rad/sec^2
Overall
Inertial accel (ft-lbs)
Drive
Coast
200
150
100
50
0
FAIL
Marginal
GOOD
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
FAIL
Marginal
GOOD

FIG. 19

200

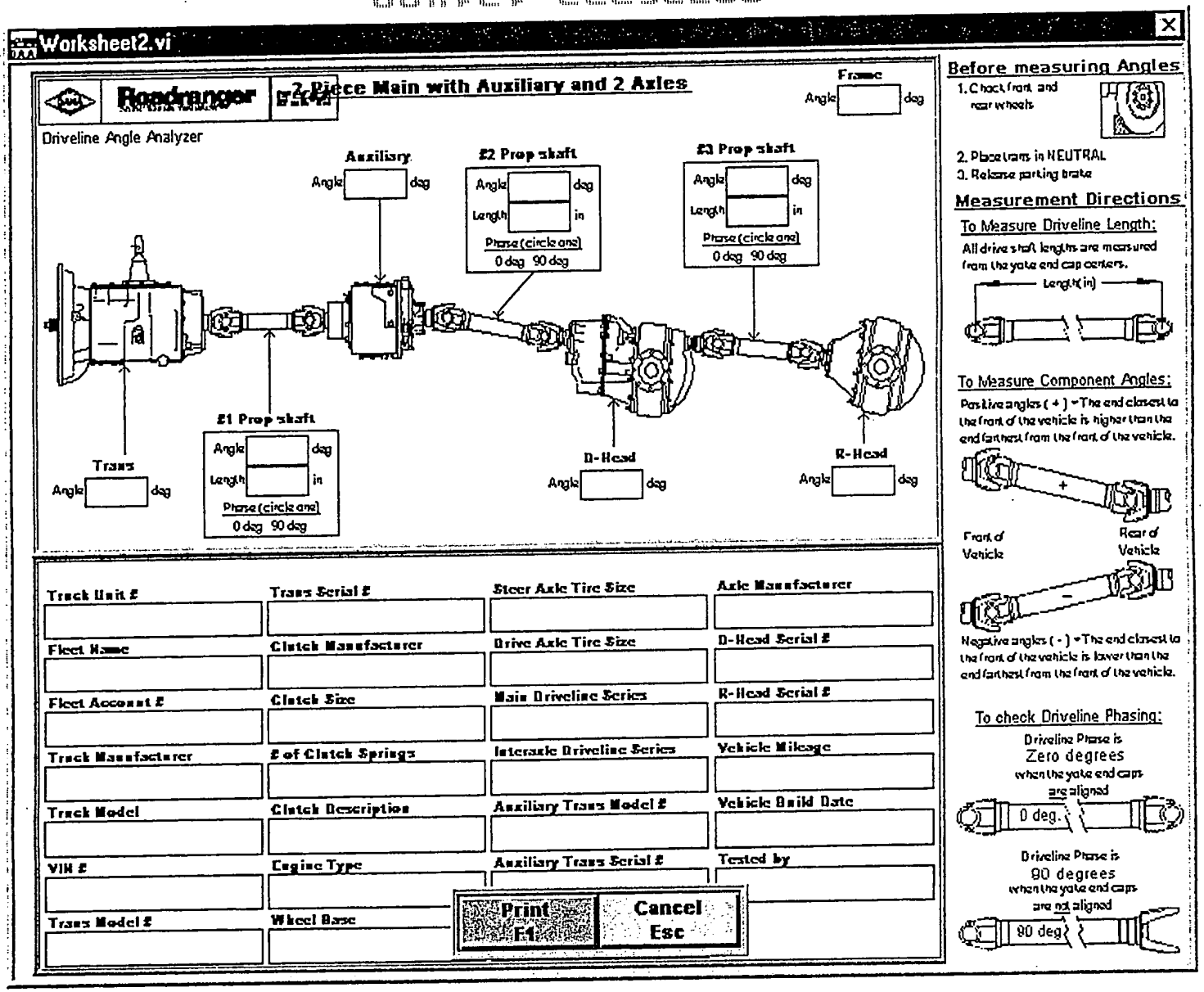
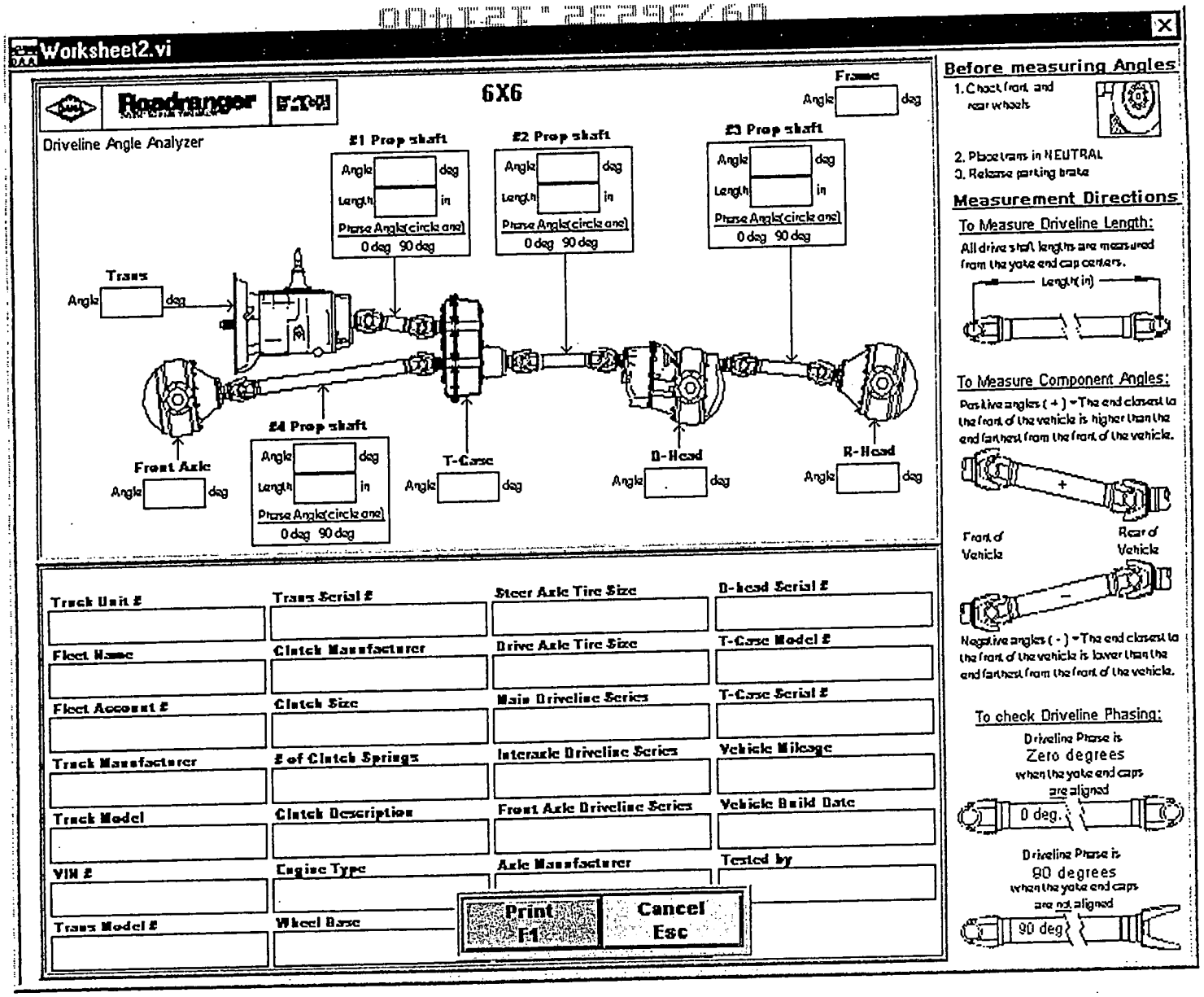


FIG. 20


Worksheet2.vi
Roadranger
6X6
Driveline Angle Analyzer
Frame
Angle dag
#1 Prop shaft
#2 Prop shaft
#3 Prop shaft
Angle dag
Length in
Phase Angle(circle one)
0 deg 90 deg
Trans
Angle dag
#4 Prop shaft
Front Axle
T-Case
D-Head
R-Head
Before measuring Angles
1. Check front and rear wheels
2. Place trans in NEUTRAL
3. Release parking brake
Measurement Directions
To Measure Driveline Length:
All drive shaft lengths are measured from the yoke end cap centers.
Length (in)
To Measure Component Angles:
Positive angles (+) = The end closest to the front of the vehicle is higher than the end farthest from the front of the vehicle.
Front of Vehicle
Rear of Vehicle
Negative angles (-) = The end closest to the front of the vehicle is lower than the end farthest from the front of the vehicle.
To check Driveline Phasing:
Driveline Phase is Zero degrees when the yoke end caps are aligned
0 deg.
Driveline Phase is 90 degrees when the yoke end caps are not aligned
90 deg
Truck Unit #
Trans Serial #
Steer Axle Tire Size
D-head Serial #
Fleet Name
Clutch Manufacturer
Drive Axle Tire Size
T-Case Model #
Fleet Account #
Clutch Size
Main Driveline Series
T-Case Serial #
Truck Manufacturer
# of Clutch Springs
Interaxle Driveline Series
Vehicle Mileage
Truck Model
Clutch Description
Front Axle Driveline Series
Vehicle Build Date
VIN #
Engine Type
Axle Manufacturer
Tested by
Trans Model #
Wheel Base
Print F1
Cancel Esc

210

FIG. 21